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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/484,989	01/18/2000	Masami Sugimori	1232-4607	1359

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EXAMINER	
ROSENDALE, MATTHEW L	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/484,989	SUGIMORI, MASAMI	
	Examiner	Art Unit	
	Matthew L Rosendale	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-61* is/are pending in the application.

4a) Of the above claim(s) *9-29 and 37-61* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 30-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 January 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

In response to the election of species Paper No. 8, the applicant has elected species I comprising claims 1 – 8 and 30 – 36 with traverse cited that the examination of the other species would not be a burden on the examiner. However, even though each species had similar classification, non-obvious features to one species different from another creates a burdensome search for the examiner having to repeat the search for each species paying close attention to the various distinct features unique to each species where art found for one species may not be applied to another distinct species due to the states non-obvious distinct features.

Claims 9 – 29 and 37 – 61 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 10.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 30 – 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Freeman.

Referring to claim 30, Freeman discloses a method of operating an image sensing device in figure 2 comprising an A/D conversion means (not illustrated) for converting an image signal output by the image sensing device 10 into a digital input signal, a color interpolation means 12, 14, and 16 for performing color interpolation on the digital signal converted by the A/D conversion means and generating image data on a plurality of color planes YGC, a color space conversion means for converting a YGC color space to a color space of another colorimetric systems such as Y-G, C-G, and a pseudo color removing means 32 and 34 for reducing a color component, generated by the color interpolation means 12, 14, and 16 by controlling a color difference signal converted by the color space conversion means 24 and 26.

2. Referring to claim 31, Freeman discloses that in the pseudo color removing step, a value of a pixel of interest is replaced with a substantial median pixel value of peripheral pixels of the pixel of interest (Col. 5, Lines 43 – 51).

3. Referring to claim 32, Freeman discloses that the pseudo color removing step is performed by a median filter 32 and 34 in figure 2.

4. Claims 30, 33, and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Jaspers.

Referring to claim 30, Jaspers discloses a method of operating an image sensing device in figures 8, 9A, and 9B comprising an A/D conversion means (not illustrated) for converting an image signal output by the image sensing device into a digital RGB input signal, a color

interpolation means PROC' for performing color interpolation on the digital signal converted by the A/D conversion means and generating image data on a plurality of color planes, a color space conversion means for converting an RGB color space to a color space of another colorimetric systems such as YUV, and a pseudo color removing means FCK for reducing a color component, generated by the color interpolation means PROC' by controlling a color difference signal converted by the color space conversion means (Col. 8, Line 54 – Col. 11, Line 53).

5. Referring to claim 33, the color interpolation step of Jaspers generates an RGB input signal shown in figure 8.

6. Referring to claim 34, the color space conversion step of Jaspers converts the RGB input signal shown in figure 9 to YUV color space.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman in view of applicants' conceded prior art.

Referring to claim 1, Freeman discloses a method of operating an image sensing device in figure 2 comprising an A/D conversion means (not illustrated) for converting an image signal

output by the image sensing device 10 into a digital input signal, a color interpolation means 12, 14, and 16 for performing color interpolation on the digital signal converted by the A/D conversion means and generating image data on a plurality of color planes YGC, a color space conversion means for converting a YGC color space to a color space of another colorimetric systems such as Y-G, C-G, and a pseudo color removing means 32 and 34 for reducing a color component, generated by the color interpolation means 12, 14, and 16 by controlling a color difference signal converted by the color space conversion means 24 and 26.

Freeman discloses image capture and processing means but does not disclose a specific focusing means for the image sensing device. However, the applicants conceded prior art shows that focusing means are well known in the art to provide a proper means of directing an object image to the image sensor.

Therefore it would have been obvious to provide the focusing means of the prior art with the image capture and processing means of Freeman so as to properly focus an object on an image plane of a sensor to capture a high quality image.

8. Referring to claim 2, Freeman discloses that the pseudo color removing means comprises a median filter 32 and 34 in figure 2.

9. Referring to claim 3, Freeman discloses that the pseudo color removing means comprises a median filter 32 and 34 in figure 2.

10. Referring to claim 4, the color interpolation means of Freeman generates image data in Y, G, and C planes. However, Official Notice is taken that RGB image sensors are well known in the art. Therefore depending on user specifications, if implementing an RGB sensor it would have been obvious that the interpolation means would generate image data in the R, G, and B planes that the image was captured to produce all 3 colors for each pixel location.

11. Referring to claim 5, the color space conversion means of Freeman converts the YGC input signal shown in figure 2 to Y-G, C-G color space. Freeman does not show an embodiment converting RGB to YUV. However, Official Notice is taken that RGB image sensors are well known in the art and converting an RGB signal to YUV is also well known in the art. Depending on the type of image sensor needed, if employing an RGB color filter scheme it would have been obvious to use any color space conversion method such as RGB to YUV so that an input image signal can be properly displayed or recorded in memory.

12. Referring to claim 6, the color space conversion means of Freeman converts the YGC input signal shown in figure 2 to Y-G, C-G color space. Freeman does not show an embodiment converting RGB to Y, R-Y, B-Y. However, Official Notice is taken that RGB image sensors are well known in the art and converting an RGB signal to Y, R-Y, B-Y is also well known in the art. Depending on the type of image sensor needed, if employing an RGB color filter scheme it would have been obvious to use any color space conversion method such as RGB to Y, R-Y, B-Y so that an input image signal can be properly displayed or recorded in memory.

13. Referring to claim 7, the color space conversion means of Freeman converts the YGC input signal shown in figure 2 to Y-G, C-G color space. Freeman does not show an embodiment converting RGB to G, R-G, B-G. However, Official Notice is taken that RGB image sensors are well known in the art and converting an RGB signal to G, R-G, B-G is also well known in the art. Depending on the type of image sensor needed, if employing an RGB color filter scheme it would have been obvious to use any color space conversion method such as RGB to G, R-G, B-G so that an input image signal can be properly displayed or recorded in memory.

14. Referring to claim 8, the focusing means of the applicants conceded prior art includes an infrared ray filter.

15. Claims 33 – 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman.

Referring to claim 33, the color interpolation means of Freeman generates image data in Y, G, and C planes. However, Official Notice is taken that RGB image sensors are well known in the art. Therefore depending on user specifications, if implementing an RGB sensor it would have been obvious that the interpolation means would generate image data in the R, G, and B planes that the image was captured to produce all 3 colors for each pixel location.

16. Referring to claim 34, the color space conversion means of Freeman converts the YGC input signal shown in figure 2 to Y-G, C-G color space. Freeman does not show an embodiment converting RGB to YUV. However, Official Notice is taken that RGB image sensors are well known in the art and converting an RGB signal to YUV is also well known in the art. Depending

on the type of image sensor needed, if employing an RGB color filter scheme it would have been obvious to use any color space conversion method such as RGB to YUV so that an input image signal can be properly displayed or recorded in memory.

17. Referring to claim 35, the color space conversion means of Freeman converts the YGC input signal shown in figure 2 to Y-G, C-G color space. Freeman does not show an embodiment converting RGB to Y, R-Y, B-Y. However, Official Notice is taken that RGB image sensors are well known in the art and converting an RGB signal to Y, R-Y, B-Y is also well known in the art. Depending on the type of image sensor needed, if employing an RGB color filter scheme it would have been obvious to use any color space conversion method such as RGB to Y, R-Y, B-Y so that an input image signal can be properly displayed or recorded in memory.

18. Referring to claim 36, the color space conversion means of Freeman converts the YGC input signal shown in figure 2 to Y-G, C-G color space. Freeman does not show an embodiment converting RGB to G, R-G, B-G. However, Official Notice is taken that RGB image sensors are well known in the art and converting an RGB signal to G, R-G, B-G is also well known in the art. Depending on the type of image sensor needed, if employing an RGB color filter scheme it would have been obvious to use any color space conversion method such as RGB to G, R-G, B-G so that an input image signal can be properly displayed or recorded in memory.

19. Claims 1 and 4 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaspers in view of applicants conceded prior art.

Referring to claim 1, Jaspers discloses an image sensing device in figures 8, 9A, and 9B comprising an A/D conversion means (not illustrated) for converting an image signal output by the image sensing device into a digital RGB input signal, a color interpolation means PROC' for performing color interpolation on the digital signal converted by the A/D conversion means and generating image data on a plurality of color planes, a color space conversion means for converting an RGB color space to a color space of another colorimetric systems such as YUV, and a pseudo color removing means FCK for reducing a color component, generated by the color interpolation means PROC' by controlling a color difference signal converted by the color space conversion means (Col. 8, Line 54 – Col. 11, Line 53).

Jaspers discloses image capture and processing means but does not disclose a specific focusing means for the image sensing device. However, the applicants conceded prior art shows that focusing means are well known in the art to provide a proper means of directing an object image to the image sensor.

Therefore it would have been obvious to provide the focusing means of the prior art with the image capture and processing means of Jaspers so as to properly focus an object on an image plane of a sensor to capture a high quality image.

20. Referring to claim 4, the color interpolation means of Jaspers generates an RGB input signal shown in figure 8.

21. Referring to claim 5, the color space conversion means of Jaspers converts the RGB input signal shown in figure 9 to YUV color space.

22. Referring to claim 6, the color space conversion means of Jaspers converts the RGB input signal shown in figure 9 to YUV color space and converts the RGB input signal shown in figure 8 to G, R-G, B-G color space. Jaspers does not show an embodiment converting RGB to Y, R-Y, B-Y. However, Official Notice is taken that converting an RGB signal to Y, R-Y, B-Y is well known in the art. Jaspers shows that color space may be converted in multiple ways while maintaining overall functionality of false color removal system and therefore it would have been obvious to use any color space conversion method such as RGB to Y, R-Y, B-Y so that an input image signal can be properly displayed or recorded in memory.

23. Referring to claim 7, the color space conversion means of Jaspers converts the RGB input signal shown in figure 9 to YUV color space and converts the RGB input signal shown in figure 8 to G, R-Y, B-Y color space. Jaspers does not show an embodiment converting RGB to G, R-G, B-G. However, Official Notice is taken that converting an RGB signal to G, R-G, B-G is well known in the art. Jaspers shows that color space may be converted in multiple ways while maintaining overall functionality of false color removal system and therefore it would have been obvious to use any color space conversion method such as RGB to G, R-G, B-G so that an input image signal can be properly displayed or recorded in memory.

24. Referring to claim 8, the focusing means of the applicants conceded prior art includes an infrared ray filter.

25. Claims 35 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaspers.

Referring to claim 35, the color space conversion means of Jaspers converts the RGB input signal shown in figure 9 to YUV color space and converts the RGB input signal shown in figure 8 to G, R-G, B-G color space. Jaspers does not show an embodiment converting RGB to Y, R-Y, B-Y. However, Official Notice is taken that converting an RGB signal to Y, R-Y, B-Y is well known in the art. Jaspers shows that color space may be converted in multiple ways while maintaining overall functionality of false color removal system and therefore it would have been obvious to use any color space conversion method such as RGB to Y, R-Y, B-Y so that an input image signal can be properly displayed or recorded in memory.

26. Referring to claim 36, the color space conversion means of Jaspers converts the RGB input signal shown in figure 9 to YUV color space and converts the RGB input signal shown in figure 8 to G, R-Y, B-Y color space. Jaspers does not show an embodiment converting RGB to G, R-G, B-G. However, Official Notice is taken that converting an RGB signal to G, R-G, B-G is well known in the art. Jaspers shows that color space may be converted in multiple ways while maintaining overall functionality of false color removal system and therefore it would have been obvious to use any color space conversion method such as RGB to G, R-G, B-G so that an input image signal can be properly displayed or recorded in memory.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hayashi discloses a median filter 40 for removing false color from the luminance portion of the YC color space converted image signal in figure 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew L Rosendale whose telephone number is (703) 305-4909. The examiner can normally be reached on Monday - Friday 8: 00am-4: 00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLR

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